VMC Vidyamandir Classes SINCE 1986
IIT JEE | MEDICAL | FOUNDATION

MOCK SCIENCE SUBJECTIVE TEST
CLASS – IX (SET – 2)

Maximum Marks: 80 **Duration: 3.0 Hrs.**

Cell, Tissues, Matter in Our Surroundings, Is Matter Around Us Pure, Atoms and Molecules, Motion, Force and Laws of Motion, Gravitation and Fluids

General Instructions:

1. This question paper consists of **39 questions**. All questions are compulsory.
2. **Paper Pattern and Marking Scheme:**

   There are **Five Sections** in the question paper (Section **A**, **B**, **C**, **D** and **E**).

   - In **Section A** – question numbers **1 to 20** are Multiple Choice Questions (MCQs) carrying **1** mark each.
   - In **Section B** – question numbers **21 to 26** are Very Short Answer Questions (VSA) type carrying **2** marks each. Answer to there questions should be in the range of **30** to **50** words.
   - In **Section C** – question numbers **27 to 33** are Short Answer Questions (SA) type carrying **3** marks each. Answer to these questions should be in the range of **50** to **80** words.
   - In **Section D** – question numbers **34 to 36** are Long Answer Questions (LA) type carrying **5** marks each. Answer to these questions should be in the range of **80** to **120** words.
   - In **Section E** – question numbers **37 to 39** are 3 source-based/case-based units of assessment carrying **4** marks each with sub-parts.
   - There is no overall choice. However, an internal choice has been provided in some Sections.

(SECTION – A)

1. Slope of velocity-time graph gives :

(A) Distance **(B)** Displacement **(C)** Acceleration **(D)** Speed

2. The brakes applied to a car produces a retardation of $6\ ms^{-2}$. If the car takes 2 second to stop after applying the brakes, the distance it covers during this time is:

(A) 12 *m* **(B)** 10 *m* **(C)** 8 *m* **(D)** 6 *m*

3. If the displacement of an object is proportional to square of time, then the object moves with:

(A) Uniform vel **(B)** Uniform acceleration

(C) Increasing acceleration **(D)** Decreasing acceleration

4. Swimming is possible due to:

(A) Second law of motion **(B)** First law of motion

(C) Newton's law of gravitation **(D)** Third law of motion

5. If force Y_1 acting on a ball of 2 *kg* produces an acceleration of $2.5 ms^{-2}$. An other force Y_2 acting on the another ball of mass 5 *kg* produces an acceleration of $2 ms^{-2}$. Find the ratio of Y_2 / Y_1.

(A) 2 **(B)** 4 **(C)** 6 **(D)** 8

6. A body A has mass 2*m* and velocity 6*v*. Another body B has mass 8*m* and velocity 2*v*. The ratio of linear momentum of A to that of B is:

(A) 1 : 4 **(B)** 3 : 4 **(C)** 3 : 1 **(D)** 2 : 1

7. **Assertion (A):** The value of acceleration due to gravity changes with the height, depth and shape of the earth.

Reason (R) : Acceleration due to gravity is zero at the centre of the Earth.

(A) Both A and R are correct, and R is correct explanation of A

(B) Both A and R are correct, but R is NOT the correct explanation of A

(C) A is correct but R is not correct

(D) A is not correct but R is correct

8. Ice floats on the surface of water because:

(A) It is heavier than water

(B) The density of both water and ice is the same

(C) Ice is lighter than water

(D) None of these

9. A liquid is kept in a China dish. The evaporation of the liquid can be accelerated by:

(A) Keeping the dish in the open **(B)** Blowing air into the liquid

(C) Keeping the dish under a running fan **(D)** All of these

10. A gas can be liquified.

(A) By increasing the temperature

(B) By lowering the pressure

(C) By increasing the pressure and reducing the temperature

(D) None of these

11. Milk is:

(A) Colloidal solution **(B)** True solution

(C) Suspension **(D)** Both (B) and (C)

12. Whipped cream is an example of:

(A) Sol **(B)** Gel **(C)** Foam **(D)** Aerosol

13. The concentration of a sugar solution is 12% (w/v). The amount of sugar present in its 400 g aqueous solution is:

(A) 24 g **(B)** 96 g **(C)** 12 g **(D)** 48 g

14. Which of the following represents a polyatomic ion?

(A) Sulphide **(B)** Chloride **(C)** Sulphate **(D)** Nitride

15. What is a tonoplast?

(A) Outer membrane of mitochondria

(B) Inner membrane of chloroplast

(C) Membrane boundary of the vacuole of plant cell

(D) Cell membrane of a plant cell

16. Plastids differ from mitochondria on the basis of one of the following features.

(A) Presence of two layers of membrane **(B)** Presence of ribosomes

(C) Presence of chlorophyll **(D)** Presence of DNA

17. Meiosis in diploid organisms results in:

(A) Production of gametes **(B)** Reduction in the member of chromosomes

(C) Introduction of variation **(D)** All of these

18. A cell plate is formed during.

(A) Cytokinesis **(B)** Karyokinesis

(C) Interphase **(D)** None of the above

19. Girth of the stem increases mostly due to the activity of:

(A) apical meristem **(B)** intercalary meristem

(C) lateral meristem **(D)** parenchyma cells

20. To which of the following categories does adipose tissue belong?

(A) Epithelial **(B)** Connective **(C)** Muscular **(D)** Neural

(SECTION – B)

21. A cricket ball of mass 100 g strikes the hands of a player with a velocity of 20 m/s and is brought to rest in 0.01 s. What is the force applied by the hands of the player?

22. A boy weight is 50*N*. What is its mass? (g = 9.8 ms^{-2})

23. **(a)** Write two characteristics of the particles of matter.

(b) A gas fill completely the vessel in which it is kept. Given reason.

24. **(a)** Define diffusion. **(b)** What constitutes matter?

25. Differentiate between vessels and tracheids?

26. Explain briefly why is mitochondria known as power house of cells.

(SECTION – C)

27. State the universal law of gravitation and derive a relation for gravitational force.

28. Two cars having their masses in ratio 3 : 5 are acted upon by two forces each on one car. The forces are in the ratio of 5 : 3. Find the ratio of their accelerations.

29. **(a)** Why does a dessert colour cool belter on a hot dry day.

(b) What is the similarity between sponge and the gaseous state?

30. A metal M forms an ionic compound of formula $M_2(SO_4)_3$.

(a) Write the symbol of its cation.

(b) What is the formula of the nitrate of metal M?

(c) The relative formula mass of $M_2(SO_4)_3$ is 392, determine the relative atomic mass of metal M.

31. Name the three different types of meristematic tissue along with their location and function.

32. Draw the diagram of neuron.

OR

Draw the diagram of plant cell.

33. Describe briefly about the organelle known as suicide bags of cells. Differentiate between mitosis and meiosis.

(SECTION – D)

34. **(a)** Define momentum. How impulse is related with change in momentum?

(b) Two body A & B of masses '*m*' & '2*m*' are in motion with velocity 2*v* & 1*v*. Compare their inertia & Momentum.

35. **(a)** A hot solution contains 5 g of a substance in 15 g of water at 35°C. What is the solubility of the substance at this temperature?

(b) A beam of light is visible when it passed through a colloidal solution, but it is not visible when passed through solution and suspension. Explain.

(c) How can a saturated solution be made unsaturated?

OR

(a) Both smoke and fog are aerosols. In what way they are different?

(b) How do sol and gel differ from each other? Give one example for each.

(c) Classify the following as sol, solution and suspension:

(i) Milk of magnesia **(iii)** Coloured gemstones

(ii) Aerated drinks **(iv)** Sand in water

36. Describe different types of epithetical tissue along with their location and function.

OR

Explain different types of connective tissue with their location and functions.

(SECTION – E)

37. If we drop a body of mass m from a height *h*, to the surface of earth, its speed will increase as it comes nearer to the surface of earth. The force on the body is equal to the product of mass and acceleration of body.

(i) The acceleration due to gravity of a planet depends on its mass and its……..

(A) Size **(B)** Radius

(C) Circumference **(D)** Distance between sun and planet

(ii) Force is the product of mass and ……

(A) Velocity **(B)** Displacement

(C) Time **(D)** Acceleration

38. Antonie L. Lavoisier laid the foundation of chemical sciences by establishing two important laws of chemical combination. But the next problem faced by scientists was to give appropriate explanations of these laws. John Dalton's theory provided an explanation for the law of conservation of mass and the law of definite proportions.

(a) State the law of constant proportions and write the postulate of Dalton which explains this law.

(b) What is an atom according to Dalton's atomic theory?

(c) Define one atomic mass unit.

OR

(c) State the law of conservation of mass.

39. These small structures that we see are the basic building units of the onion bulb. These structures are called cells. Not only onions, but all organisms that we observe around are made up of cells. However, there are also single cells that live on their own.

The invention of magnifying lenses led to the discovery of the microscopic world. It is now known that a single cell may constitute a whole organism as in Amoeba, Chlamydomonas, Paramecium and bacteria. These organisms are called unicellular organisms (uni = single). On the other hand, many cells group together in a single body and assume different functions in it to form various body parts in multicellular organisms (multi = many) such as some fungi, plants and animals. Can we find out names of some more unicellular organisms?

Every multi-cellular organism has come from a single cell. How? Cells divide to produce cells of their own kind. All cells thus come from pre-existing cells.

(i) What is the basic unit of all living organisms?

(ii) Name three unicellular organisms.

(iii) Why are cells called as structural and functional unit of life.

(iv) "Cells exists from pre-existing cell". Justify the statement.